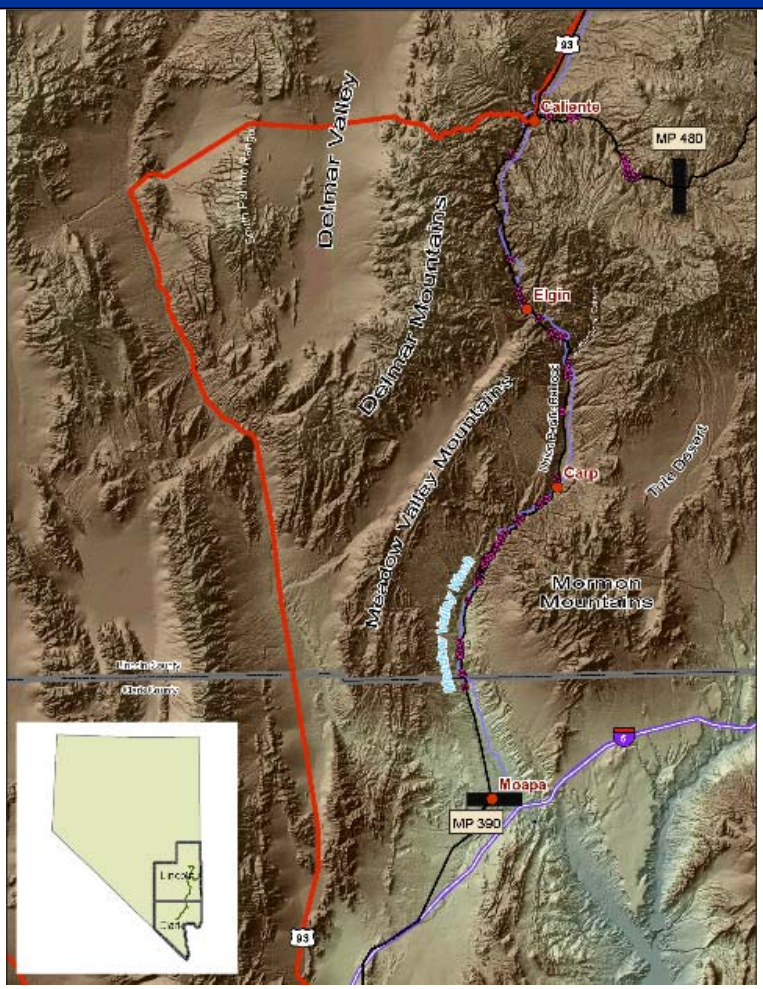
Environmental Assessment



Pennsylvania Canyon Area and Quarry Site Reclamation near Elgin, Nevada

November 2006

Prepared for: Bureau of Land Management

CDM

Contents

Appendices

List of Figures

List of Tables

Section 1
Introduction, Need, and Objectives

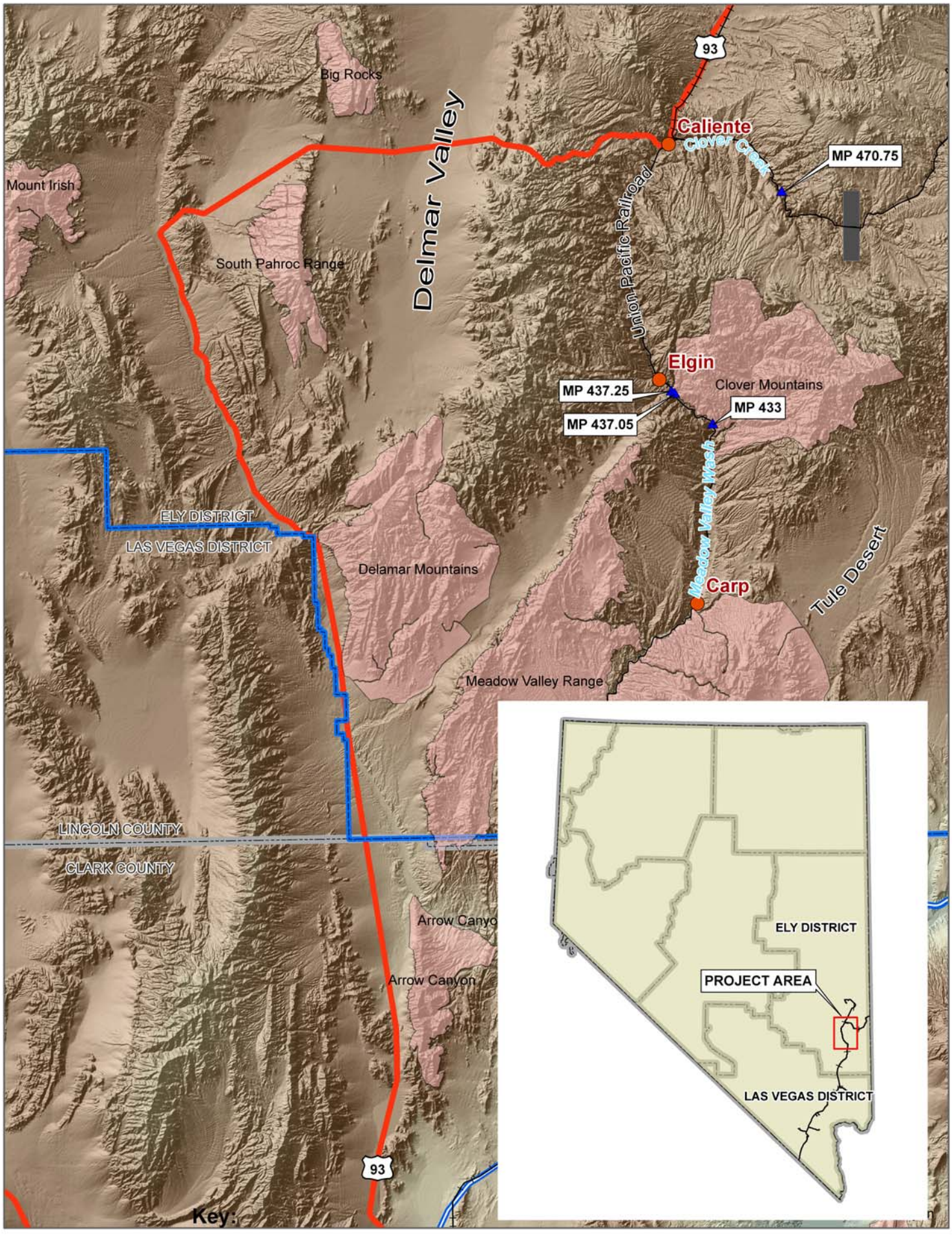
1.1 Introduction

The Union Pacific Railroad (UPRR) proposes to repair a rock embankment at Pennsylvania Canyon; restore an access road at Clover Creek; and reclaim five borrow areas, portions of which are located partially within the boundaries of the Clover Mountains Wilderness Area in Lincoln County, Nevada (see Figure 1). The five borrow areas were used by UPRR as a source of rip-rap or soil fill for repairing flood damage to the rail line which occurred in January 2005. UPRR, in cooperation with BLM, has prepared this environmental document to analyze the reclamation alternatives and the no-action alternative for these activities.

Due to a lack of distinguishing characteristics such as intersections within the Clover Creek – Meadow Valley Wash system, sites will be referenced by railroad milepost (MP) number. MPs can be readily included in most maps and are consistently marked throughout the system, allowing for easy field identification of the sites. One borrow area is located at MP 437.25, one borrow area also called the quarry is located at MP 437.05, and three borrow areas are located at MP 433. The rock embankment at Pennsylvania Canyon is located at MP 437.25. The access road at Clover Creek is located at MP 470.75.

Pennsylvania Canyon and Quarry Sites

Stabilization work would occur at MP 437.05 and 437.25 (T 7S., R 67E., Section 17, NW 1/4 of SW 1/4, SW 1/4 of NW 1/4) at its confluence with Meadow Valley Wash. Work at the site would primarily consist of rebuilding embankments with rock rip-rap where the high flood flow substantially scoured banks and pre-existing berms, and reclaiming borrow areas at the quarry site (MP 437.05) and at locations adjacent to Pennsylvania Canyon (MP 437.25). Reclamation at the borrow areas (MP 437.05 and MP 437.25) would involve recontouring talus slopes through blasting. A BLM 299 grant application has been submitted for Pennsylvania Canyon site (MP 437.25). The rock embankment at Pennsylvania Canyon (MP 437.25) would be armored to minimize the need for maintenance. Maintenance is only anticipated to be needed in the event of a flooding event. Total disturbed area at the quarry site (MP 437.05) is 0.6 acres, all of which is within Clover Mountains Wilderness Area. Total disturbed area at Pennsylvania Canyon (MP 437.25) includes 4.83 acres within Clover Mountains Wilderness Area and approximately 3 acres on public land managed by the Bureau of Land Management (BLM).



CDM

ProjectRailroads
BLM district boundaries
wilderness boundaries

5 0 5
Miles

N
S

Figure 1
SITE MAP

Clover Creek

UPRR is proposing to undertake stabilization work at site MP 470.75 (T 4S., R 68E., Section 27; SW 1/4 of NW 1/4, and Section 34; NE 1/4 of NW1/4) in Clover Creek. This is proposed based on a need to complete reclamation of a soil borrow source area on the uphill side of the rail line. A majority of the site occurs within UPRR right of way (ROW), but some disturbance occurs on public land managed by BLM. An access road also extends up the hill along a power line ROW and would be left in place for potential future maintenance activities. The access road is not within Clover Mountains Wilderness Area boundaries. A BLM 299 grant application has been submitted for use of the access road at the Clover Creek site (MP 470.75). MP 470.75 is near a steep bank that has historically sloughed material onto the ROW. Total disturbed area at this site includes 1 acre on railroad ROW, 0.52 acres on public land managed by BLM that would require stabilization and reseeding, and 0.39 acres for the power line access road on public land managed by BLM.

To prevent erosion both during construction and long-term, Best Management Practices (BMPs) would be implemented for stormwater runoff. The proposed plan would remove excess stockpiled rock and regrade slopes to the minimum slope achievable with available on site disturbance material, install permanent stormwater controls, and reseed using the Clover Creek (Upper) BLM seed mix (see Appendix B). At toe of slope, a bioswale would be constructed, 3-feet deep, 10-feet wide (at bottom). The top width of the bioswale would be 22-feet and the slope 2:1. An existing bench would be regraded and sloped so that rainfall collected on the surface would be diverted into a ditch. The ditch would be designed to accommodate a two-year storm, as required by the Nevada Division of Environmental Protection. After final regrading, the bench would be scarified, seeded and hydromulched. The existing road would be regraded to slope towards the ditch. After the final regrading the disturbed areas would be scarified, seeded and hydromulched.

All disturbed areas would be scarified and seeded in accordance with the revegetation plan. If there is a concern of significant overland flow during the time of construction, all equipment would be removed and work would discontinue. Work would be well above the ordinary high water mark of the wash, and would not affect or be affected by flow within the wash.

Additional Borrow Sites

Vegetative restoration work would occur at three locations (Sites D, E, and F) at MP 433 (T 7S., R 67E., Section 27, SE 1/4 of SE 1/4). Work at the sites would primarily consist of reseeding areas disturbed by borrow activities. Some future maintenance could be required for the reseeded areas, such as additional reseeding. A portion of the disturbed area is located within the wilderness boundary. Total disturbed area at this site includes approximately 1 acre within Clover Mountains Wilderness Area and approximately 1.64 acres on public land managed by BLM.

1.2 Need for the Action

The need for the project is to restore the sites discussed above to a near-natural condition. The reclamation for the sites in wilderness areas needs to be as consistent as practicable with the "naturalness" characteristic of Wilderness as defined in the Federal Land Policy Management Act (FLPMA [U.S.C. 1701]) and the BLM Wilderness Management Handbook (Manual H-8560).

1.3 Project Objectives

- Recontour talus slopes
- Restore compacted soils to a near-natural state
- Revegetate disturbed areas
- Control erosion to the extent practicable
- Protect cultural resources
- Control noxious weeds to the extent practicable

Each project objective would assist in restoring the disturbed areas to near-natural conditions. Recontouring the talus slopes would create a more natural-looking rock formation, reducing the visibility of human impacts to the environment. Decompacting the soils would allow root systems to be more readily established, increasing the likelihood of revegetation in the disturbed areas, and would also create more natural ground contours. Successful revegetation using native plants would discourage the growth of invasive, non-native plant growth.

1.4 Lead and Cooperating Agencies and Relationship to Planning

The areas of the proposed reclamation are located on public land managed by BLM and on public land managed by BLM which was designated as the Clover Mountains Wilderness Area in November 2004 (Public Law 108-424). As administrator of the Clover Mountains Wilderness Area, the BLM has jurisdiction over the management of the area in accordance with:

- FLPMA of 1976
- Wilderness Act of 1964 (16 U.S.C. 1131)

As such, the BLM is responsible for resource planning and is the decision-maker concerning the proposed reclamation activities. BLM is the lead agency and has worked in conjunction with several agencies.

The other agencies lend technical expertise and consultation where required and provide document review and comments if requested by BLM.

In addition to the provisions of the Wilderness Act and FLPMA, the BLM must also consider the following when making planning decisions relating to the proposed reclamation:

- National Environmental Policy Act (NEPA)
- Endangered Species Act of 1973 (ESA)
- Multiple-Use Sustained-Yield Act
- Special Status Plant Species
- Archaeological Resources Protection Act (ARPA)
- National Historic Preservation Act

The following BLM guidance documents were used during the preparation of the Environmental Assessment (EA) document:

- BLM Manual 8560, H-8560-1, 8561 (Wilderness Management)
- BLM Manual 1790 (NEPA), 516 DM (Departmental Manual), H 1790 1 (NEPA)

The following planning documents were consulted during the preparation of this EA:

- Lincoln County Master Plan. 2001
- Lincoln County Public Land Policy Plan. 1997
- Lincoln County Weed Plan.
- Environmental Assessment - Wilderness Disturbance Reclamation. BLM NV-040-05-010. 2005
- Caliente Management Framework Plan. BLM, 1982.
- Approved Caliente Management Framework Plan Amendment and Record of Decision for the Management of Desert Tortoise Habitat. BLM, 2000.

1.5 Issues

The following issues have been identified:

- Wilderness
- Visual Resources
- Wildlife habitat
- Cultural/Historic resources in Pennsylvania Canyon (MP 437.25)

Section 2
Alternatives Considered
2.1 Introduction

Reclamation has been proposed for the portions of the five borrow sites inside the periphery of the Clover Mountains Wilderness Area in Lincoln County, Nevada, and one site along Clover Creek. The alternative to reclaiming these sites is to take no action, allowing the sites to remain in their disturbed state. The borrow sites at MP 437.25, MP 437.05, and MP 433 were used by Union Pacific Railroad (UPRR) for rip-rap to stabilize the Meadow Valley Wash stream channel or soil fill to bring the railroad bed to grade. Both the stream channel and the railroad bed were severely damaged by the January 2005 flood event. The flood did significant damage throughout the Meadow Valley Wash drainage basin. Reclamation is proposed for those portions of the borrow areas within Wilderness area (MP 437.75, MP 437.05, and MP 433) and for the Clover Creek site (MP 470.75). The disturbance area in the wilderness is approximately 6.5 acres. The areas associated with this EA which are outside of the wilderness boundary, but on public land managed by BLM and would require additional reclamation, are less than 5.6 acres, and consist of a dike adjacent to the Wilderness area, portions of the borrow areas, and a short access road less than 500 feet leading to electric power facilities along Clover Creek. These latter areas may be covered by Categorical Exclusion from NEPA requirements, but are addressed within the EA in order to facilitate BLM decisions associated with these areas. Photos 1, 2, 3, and 4 below show the disturbance areas within the Wilderness.

Photo 1 –Looking east from the County Road at rock disturbance at Quarry site (MP 437.05)

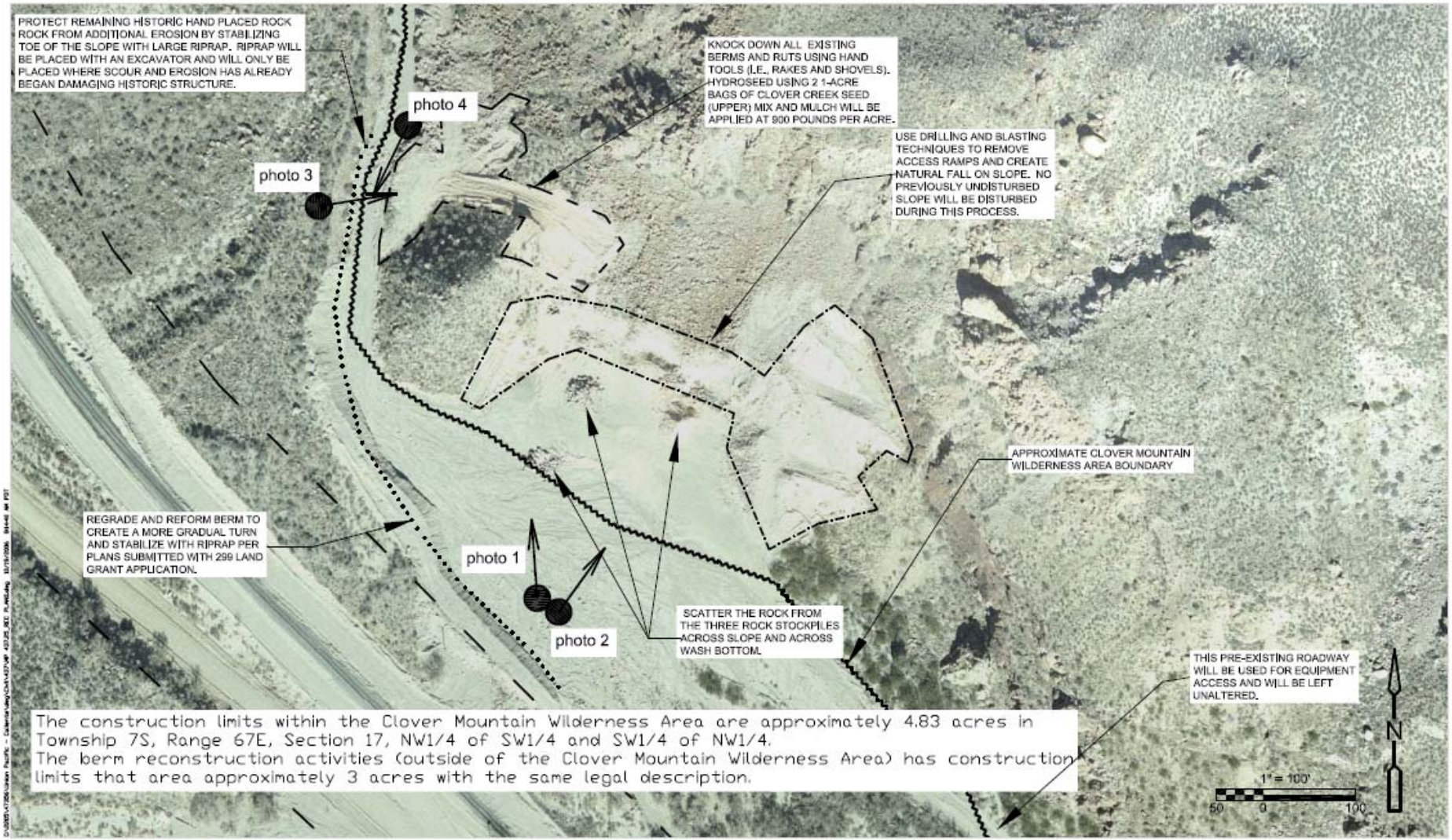
Photo 2 – Pennsylvania Canyon disturbance area at MP 437.25

Photo 3 – Borrow Areas at MP 433

Photo 4 – Borrow Areas at MP 433

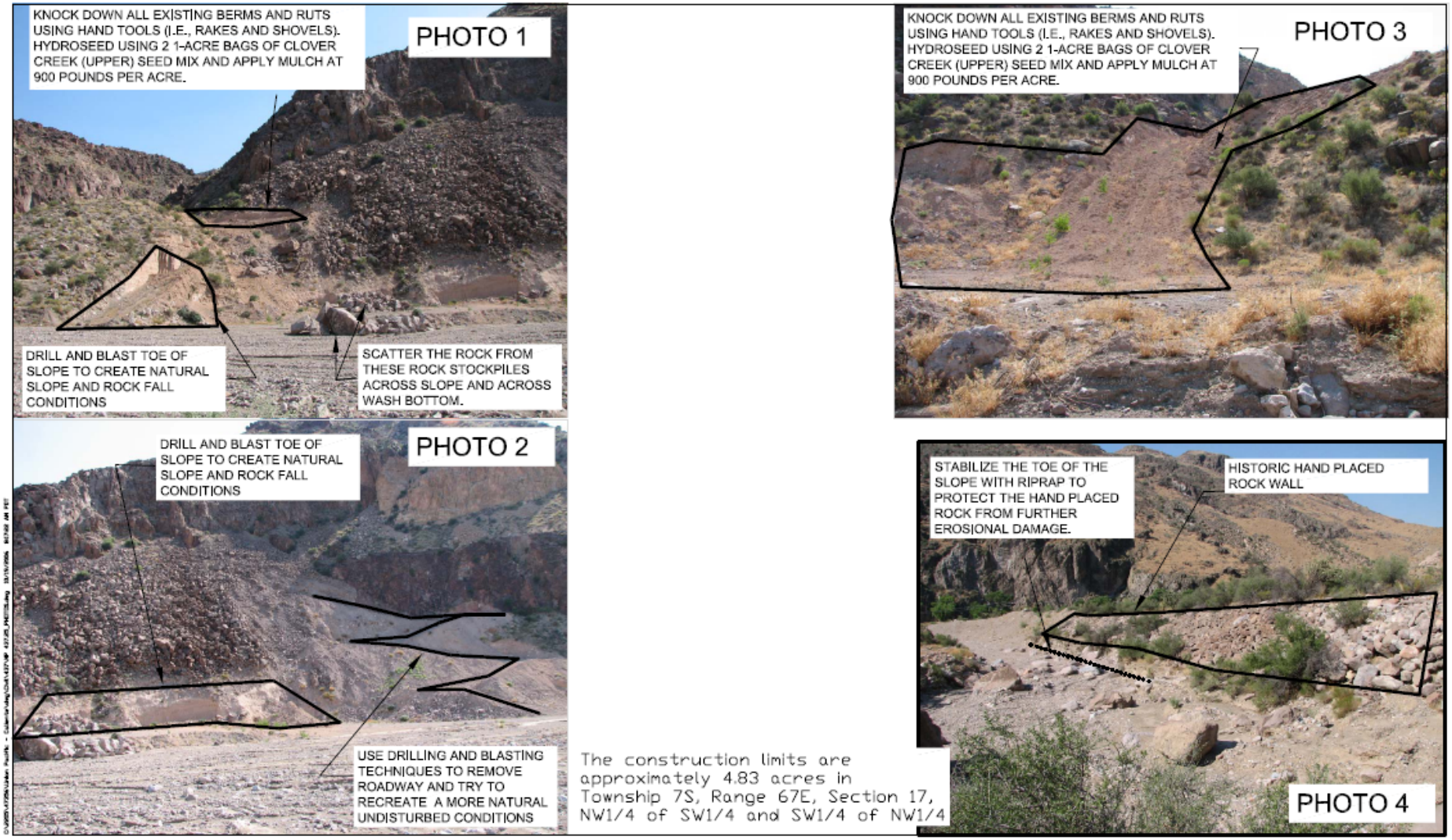
2.2 Proposed Action

Disturbance reclamation is proposed at the sites discussed above, five of which are within the Clover Mountains Wilderness Area in Lincoln County (MP 437.75, MP 437.05, and MP 433). These small scale disturbances totaling approximately 12.1 acres (6.5 acres within the Wilderness Area) require some level of reclamation. Figures 1 and 2 show the Pennsylvania Canyon area reclamation (MP 437.75, Figures 3 and 4 show the proposed quarry restoration (MP 437.05), Figure 5 shows the road reclamation in Clover Canyon (MP 470.75), and Figures 6 and 7 shows the reclamation areas at MP 433. The sites were recently used as borrow sites for rip-rap. Rip-rap was needed to stabilize the Meadow Valley Wash stream channel from erosive forces that could cut away the existing Union Pacific Railroad (UPRR) embankment and tracks. Reclamation of the disturbed areas is the proposed alternative.



Union Pacific Railroad
BLM Reclamation Project
Caliente, NV

Figure 2
Pennsylvania Canyon Reclamation (MP 437.25)

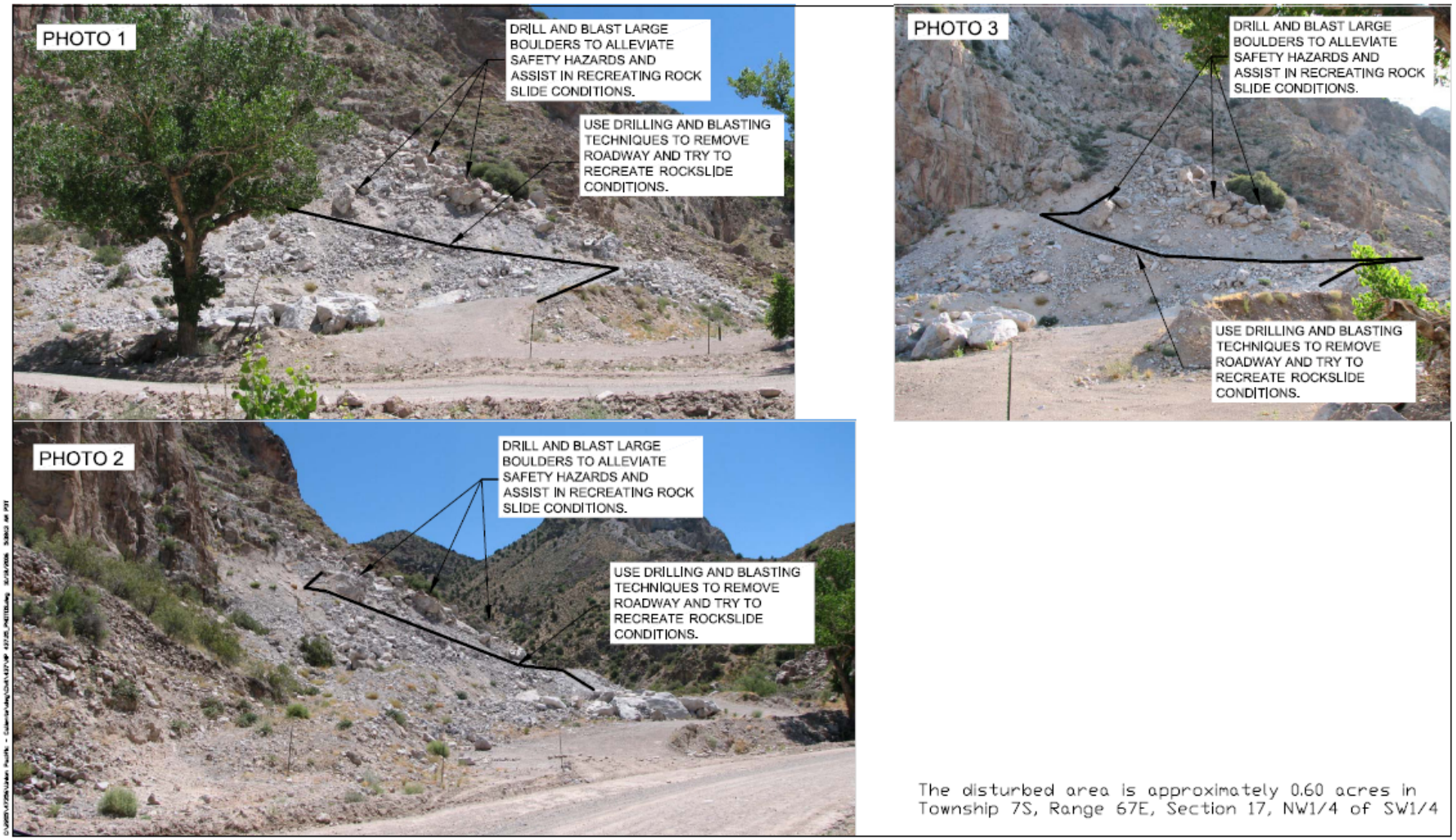


Union Pacific Railroad
BLM Reclamation Project
Caliente, NV

FIGURE 3
Pennsylvania Canyon Photos (MP 437.25)

Union Pacific Railroad
BLM Reclamation Project
Caliente, NV

FIGURE 4
Quarry Reclamation (MP 437.05)

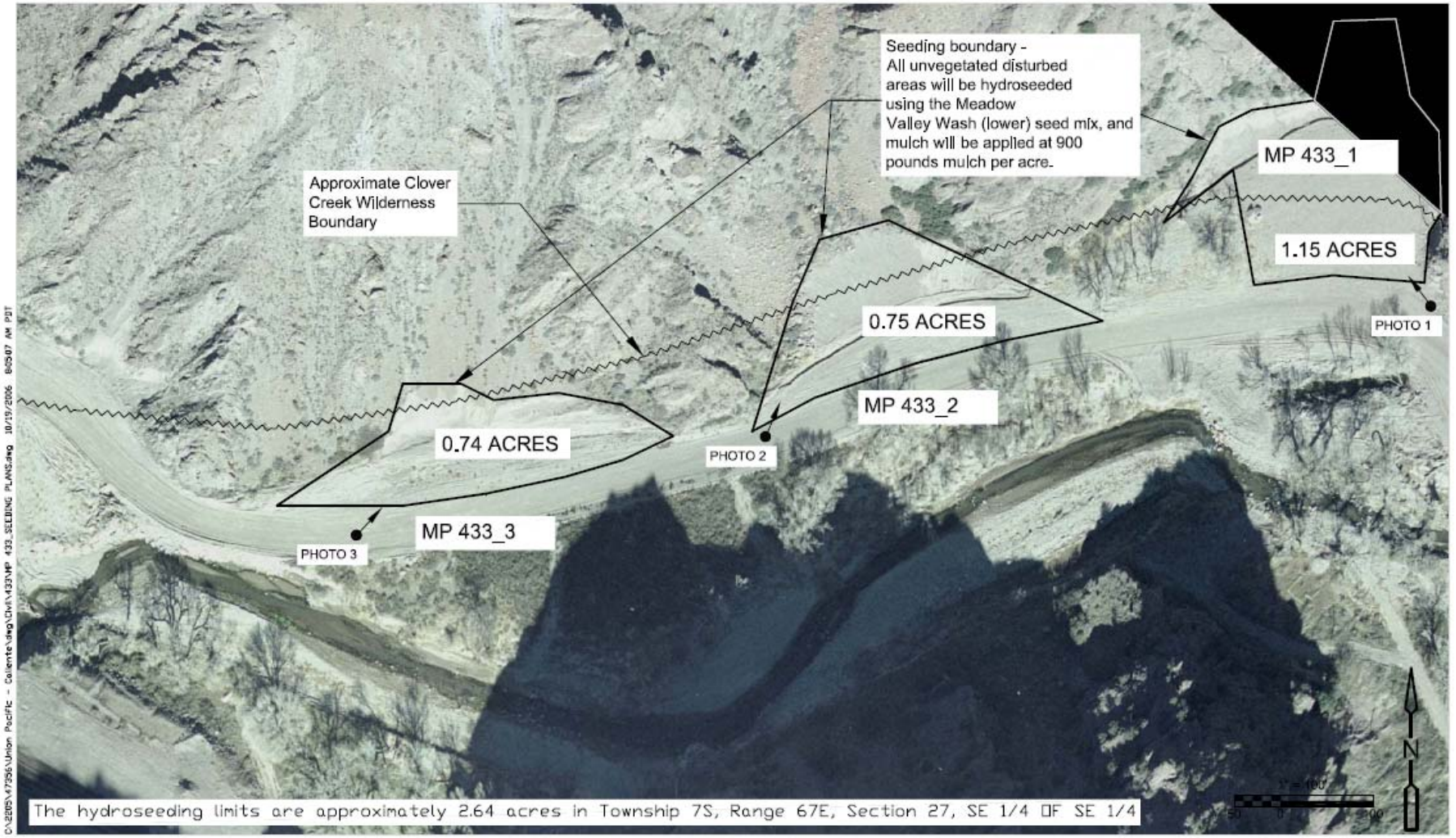


Union Pacific Railroad
BLM Reclamation Project
Caliente, NV

FIGURE 5
Quarry Reclamation Photos (MP 437.05)

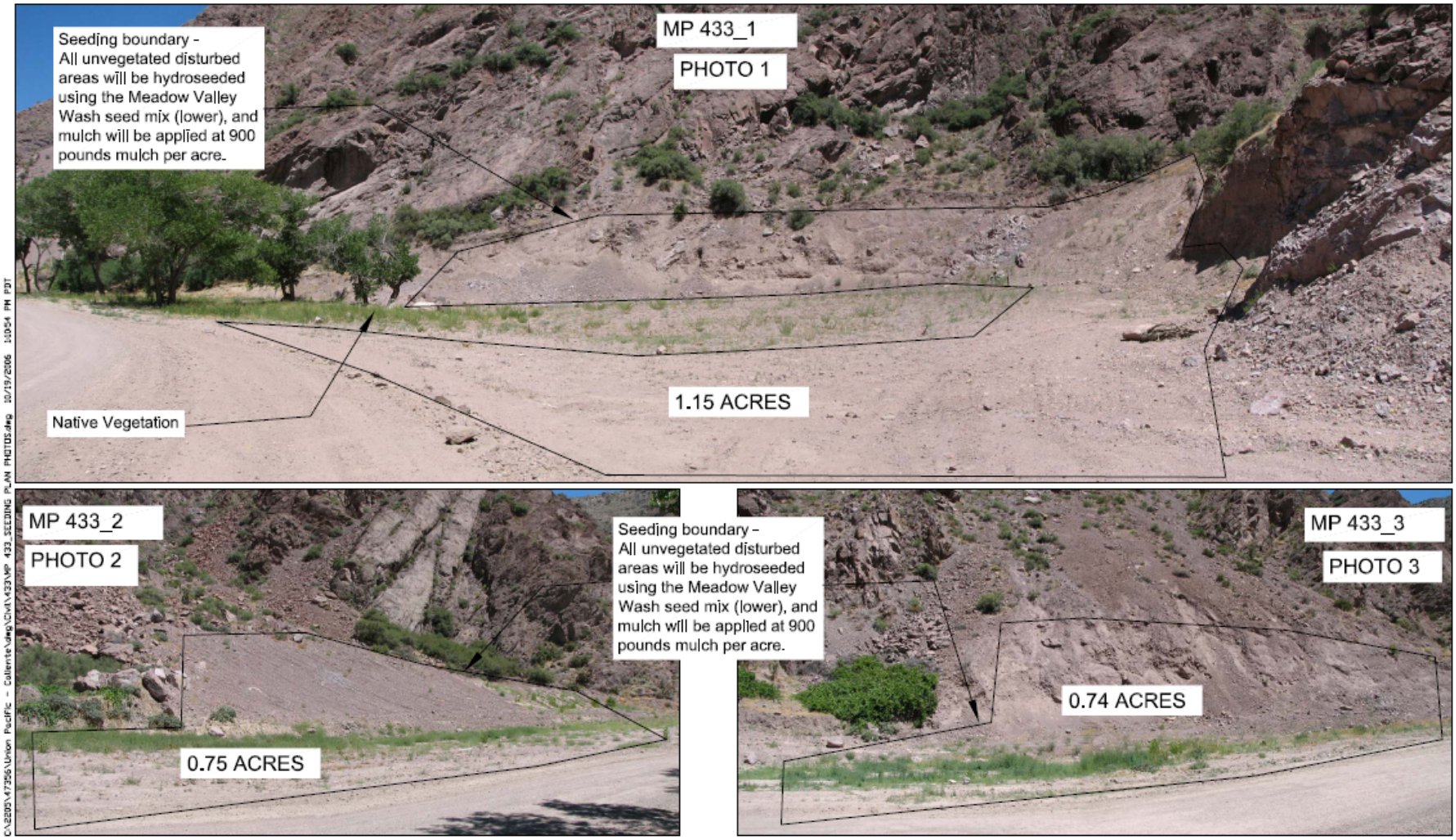
Union Pacific Railroad
BLM RECLAMATION PROJECT
Caliente, NV

FIGURE 6
CLOVER CREEK BORROW PIT RECLAMATION AND ROAD GRADING (MP 470.75)



Union Pacific Railroad
BLM RECLAMATION PROJECT
Caliente, NV

FIGURE 7
Borrow Areas Seeding Plans (MP 433)



Union Pacific Railroad
BLM RECLAMATION PROJECT
Caliente, NV

FIGURE 8
Borrow Areas Photos (MP 433)

2.2.1 Reclamation Activities

Reclamation work would be completed by contractors. Reclamation activities would be subject to the Standard Operating Procedures included in Appendix A. Actions would include and generally be conducted in the following order AS NEEDED:

(a) Rock Falling (talus slope recontouring) – A small, tracked drill would be walked into the disturbed areas and drilling would be completed at optimum locations for placing a charge. A tracked excavator would only be used if necessary to facilitate core drill access. No mechanized equipment would be used in areas that have not been previously disturbed. Charges would be placed by an expert blasting technician and would be placed and detonated in such a manner that, to the extent practicable, rock slopes would shear and flow by gravity to create a natural appearance, similar to an undisturbed condition. A natural rock armor capable of resisting erosive forces would be applied on slopes with disturbed soil, resulting in an appearance similar to the disarray typically seen in a colluvial, rocky, landslide type environment.

(b) Decompaction and Naturalization – The contractor would work the top few inches of the disturbed surface shown in Figures 1 through 4 to relieve soil compaction and create a natural form. This action would be completed with the use of non-motorized hand tools (soil spades, spading forks, McCloud rakes, Pulaski's, and shovels). In several locations at both sites, the previous use of mechanized equipment is apparent, such as marks made by excavator tracks, the teeth of an excavator bucket, etc. These mechanical remnants would be removed.

(c) Scarifying/pitting – Non-motorized, hand tools would be used to loosen and give texture to the impacted disturbed surface in random locations to better capture water, organic debris and wind-blown seeds, thereby stimulating natural revegetation.

(d) Erosion control – Placing sterile weed free hay bales or waddles and creating light terracing/rock berms to reduce erosion and create a sediment deposition location at the base of steep slopes. The hay bales and waddles break down over time and provide additional organic debris for the reclamation of the site. Bales or waddles would be brought in by hand. Check dams would be installed to reduce erosion by decreasing stormwater runoff velocity.

(e) Vegetative Restoration – This would involve planting, transplanting and/or seeding necessary to help stabilize soil, speed overall vegetative recovery and camouflage evidence of disturbances. All seed would be locally collected or would consist of native species and would be scattered on reclaimed surfaces to accelerate natural revegetation. This action would be completed by a small hydroseeding truck using the proposed seed mixes presented in Appendix B.

Two different seed mixes were selected for use within the Clover Creek - Meadow Valley Wash system to reflect vegetational differences. The Clover Creek (Upper) Seed Mix would be used at sites north of Pennsylvania Canyon (MP 437.25), while the Meadow Valley Wash (Lower) Seed Mix would be used at sites south of MP 437.25.

These seed mixes were selected during ongoing projects within the same system, in consultation with the US Environmental Protection Agency and the Bureau of Land Management.

(f) Cultural Resource Protection – This would involve placing large rip-rap at the base of the hand-placed rocks in the dike created in Pennsylvania Canyon. UPRR created a dike that is in excess of 50 years old. This dike used hand-placed, craftsman style rock armor. During the flood of 2005, stream scour eroded the base of the rock. By placing rip-rap in the scoured sections, the remaining hand-placed rock would be preserved. An example of the hand-placed rock dike which was not disturbed by the flood is shown in Photo 3. The flood damage to the cultural resource is shown in Photo 4. This structural improvement would be completed with an excavator and bucket. Rock would be obtained locally from within UPRR ROW from Richmond Quarry at MP 470.20 and brought to the site by train. The rock would be gently placed by excavator and bucket. The placement of the larger rock below the hand placed rock would serve as a protective mechanism to stabilize the hand placed rock from scour mechanisms that occur during flooding. The area that would require scour protection is less than 200 feet in length.

Photo 3- Undisturbed, hand-placed rock dike.

Photo 4 – Scour below hand-placed rock (typical) requiring structural enhancement.

2.2.2 Proposed Action Standard Operating Procedures – Additional Environmental Protection Measures

This proposed action is further defined by the following Environmental Protection Measures that would serve as a supplement to the Standard Operating Procedures attached in Appendix A. Reclamation activities described by this environmental assessment would be performed in full compliance with these Standard Operating Procedures.

(a) Reclamation activities would only be conducted by UPRR within their ROW or on public lands administered by the BLM.

(b) Work would be conducted in the fall and winter of 2006 and early spring of 2007, and the breeding season for southwestern willow flycatcher is May 1st through August 31st. In the unanticipated event that work were to occur during breeding season in suitable southwestern flycatcher habitat, United States Fish and Wildlife Service would be consulted. If a migratory bird survey is determined to be necessary, an approved biologist would be selected to conduct the survey, which would be approved by a BLM wildlife biologist. If nesting sites are found in the immediate vicinity of the work site, reclamation activities on that route would be postponed until the end of the nesting season.

(c) A cultural resource inventory has been undertaken at the Pennsylvania Canyon (MP 437.25) and quarry (MP 437.05) sites. An inventory was not conducted at the Clover Creek (MP 470.25) site, however the only activity on public land managed by BLM is the grading of an existing road. In the event that cultural or paleontological

resources are discovered during reclamation activities that were not previously identified, operations in the vicinity of the discovered resources would cease immediately and the operator would notify the Ely Field Office Archaeologist or authorized official. The Archaeologist would, as appropriate, evaluate the significance of the find and determine the need for mitigation. The operator would not proceed with potentially disturbing activities until authorized.

(d) The contractor, and any agency personnel assisting in reclamation activities, would be oriented in the use of tools and equipment as well as any special wildlife, plant, cultural and wilderness resources and would be informed of the locations of wilderness boundaries. Crew and personnel would all be provided with cultural observation reports prior to reclamation activities.

(e) All vehicles would be limited to designated and existing roads outside of designated wilderness. All vehicles and other project equipment would be cleaned and inspected prior to entering project areas. The cleaning would concentrate on the undercarriage, with special emphasis on axles, frame, cross members, motor mounts, and on underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs would be swept out and refuse would be disposed of in waste receptacles, which would be removed from the job site and taken to an authorized landfill.

In addition, no work is proposed or expected in desert tortoise habitat.

2.2.3 Proposed Action- Maintenance

Reclamation actions would need to be maintained. Natural or human caused destruction of reclamation actions may occur. UPRR would maintain the site restoration for two years after the construction is completed. Maintenance would include hand pulling and/or back-pack walk in spraying of noxious or invasive weed species, and placing hay bails or straw waddles in areas with significant erosion. These maintenance activities would be conducted without the aid of mechanized equipment within the wilderness boundary, and would continue past the two year period outside the wilderness boundary.

2.2.4 Proposed Action -Monitoring

UPRR would monitor the sites by visual inspection six times per year for two years after construction is completed.

2.3 No Action Alternative

Active reclamation and restoration of approximately 6.5 acres of disturbed area within the wilderness area would not occur. Areas would continue to have an unnatural appearance until natural events such as flooding, earthquakes, landslides etc. re-establish a natural disarray of rocks within the disturbance area. According to the Nevada Seismological Laboratory website, over the past 150 years there have been 24 earthquakes in Nevada greater than or equal to a magnitude 6 earthquake, most of which have been in the western portion of the state.

2.4 Alternatives Considered but Eliminated from Detailed Analysis

The use of extensive motorized vehicles and heavy equipment was considered for implementing the proposed action. Although this would be a faster method of accomplishing reclamation, this alternative was not considered in a detailed analysis because it was not the minimum tool for administration of the Wilderness Areas and the safety of construction workers would be at risk moving unstable rock to create a natural appearance.

Other Action Alternatives

Other action alternatives were determined unnecessary to respond to unresolved conflicts concerning alternative uses of available resources.

Section 3
Resources
3.1 Wilderness

According to FLPMA, the factors which make up an areas wilderness characteristics fall into three categories as follows:

- Naturalness and Untrammeled Character
- Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation
- Special Features (ecological, geological, or other features of scientific, educational, scenic, or historical value)

In the following sections, the borrow areas within the designated Wilderness Area would be evaluated against the three categories which define a Wilderness Area.

Naturalness and Untrammeled Character

Naturalness describes an area which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable". The current condition of the borrow areas is not consistent with a state of naturalness due to the following disturbances:

- Excavations within talus (natural rock slide/fall areas)
- Surface disturbances resulting in loss of vegetation and un-natural contours
- Compaction of native soils by heavy equipment

These disturbances detract from the untrammeled character of the Wilderness, providing evidence of human action rather than natural forces shaping the wilderness.

Opportunities for Solitude or Primitive and Unconfined Recreation

Solitude is defined in FLPMA as (1) the state of being alone or remote from habitations; isolation (2) a lonely, unfrequented, or secluded place. Primitive and unconfined recreation is defined as those activities that provide dispersed, undeveloped recreation which do not require facilities or motorized equipment. Recreational uses of the wilderness areas include day hiking, backpacking, caving, photography, equestrian use, rockhounding, big game and upland bird hunting, wildflower viewing, bird watching, sightseeing and other activities.

The borrow areas themselves at MP 437.25, MP 437.05, and MP 433 are located within sight of the UPRR tracks and state road 317 and are subject to train and traffic noise as they straddle the border of the Wilderness Area and are located at an access point from the road to the wilderness. At these locations, the strict definition of solitude is not met and is not practical. However, a short distance up the canyon the road and tracks and

associated noise are imperceptible and the area becomes more suited for solitude and primitive recreation.

Special Features

Special features include ecological, geological, or other features of scientific, educational, scenic, or historical value.

Special features in the vicinity of the borrow areas include scenic features, cultural features and other resources which would be discussed elsewhere in this document.

3.2 Areas of Critical Environmental Concern

The areas of critical environmental concern (ACECs) program is managed by the BLM as a result of the 1976 Federal Lands Policy and Management Act. The ACEC mandate directs the BLM to protect important riparian corridors, threatened and endangered species habitat, cultural and unique scenic landscapes. The Caliente Management Framework Plan (MFP), approved in 1982, did not designate ACECs. An amendment to the Caliente MFP subsequent to the listing of the desert tortoise and the designation of Critical Habitat for this species created several ACECs. The ACECs are more than 25 miles to the south of the proposed action.

3.3 Wildlife

A variety of wildlife species are known from the region, consisting of species common to both the Mojave and Great Basin. The higher elevations of the Clover Mountains Wilderness Area support a wide variety of large mammal species, including American badger (*Taxidea taxus*), bobcat (*Felis rufus*), mountain lion (*Felis concolor*), bighorn sheep (*Ovis canadensis*), and mule deer (*Odocoileus hemionus*). Several small mammal species, including pallid bat (*Antrozous pallidus*) and California myotis (*Myotis californicus*), occur in the region. Meadow Valley Wash, located west of the wilderness area, provides habitat for numerous birds, reptiles and amphibians that can also be found within portions of the Clover Mountains Wilderness Area.

3.3.1 Special Status Species

Although suitable nesting habitat for the federally listed endangered southwestern willow flycatcher (*Empidonax traillii extimus*) has been identified in the region, a habitat analysis indicates that the reclamation sites do not occur within areas currently suitable for nesting by the species. No suitable flycatcher habitat would be disturbed by proposed activities, and reclamation activities would be sufficiently far from suitable habitat as to not pose a noise disturbance.

Designated critical habitat for the Mojave desert tortoise (*Gopherus agassizii*) occurs to the south, within the Mormon Mountains Wilderness Area, with Mojave desert tortoise habitat extending as far north as the confluence of Meadow Valley Wash and Cottonwood Canyon (MP 431.8). However, desert tortoise critical habitat areas are south of the proposed wilderness reclamation areas.

Other sensitive wildlife species documented in the Nevada Natural Heritage Program (NNHP) within the immediate vicinity of the proposed action include the Meadow Valley Wash desert sucker (*Catostomus clarki spp.*), Meadow Valley speckled dace (*Rhinichthys osculus* spp.), Arizona toad (*Bufo microscaphus microscaphus*), California myotis, and pallid bat. The proposed action area does not support flowing water that is necessary for the sucker, dace, and toad; therefore, the proposed action is not expected to affect these species. However, the California myotis and the pallid bat may occur in the rock crevices within the proposed action area.

3.4 Soils

In general, the project area is underlain by the Veet-Mosida Association (VMA). VMA is characterized as very gravelly sandy loam, which makes these soils extremely susceptible to erosion via wind and water. The average depth of VMA varies depending on the specific location within Lincoln County, but generally ranges from approximately 0 meters (0 feet) to approximately 1.5 meters (5 feet). The majority of the soil surrounding the project area is generally undisturbed with the exception of the locations of railroad tracks and paved roads.

3.5 Vegetation

Vegetation within and adjacent to the project area consists primarily of Great Basin components, with some features of the Mojave vegetation ecosystem associated with the Pennsylvania Canyon area of the project area. Typical upland plant species associated with the project area include saltbrush, sagebrush, and creosote. Riparian species associated with the disturbed areas include re-colonizing individuals of cottonwood and saltcedar.

3.6 Invasive, Non-Native Species

A recent noxious weed assessment was conducted by the BLM for Meadow Valley Wash and Clover Creek, including the region encompassing the proposed action. The noxious weed assessment consisted of a field survey and analysis of the BLM-maintained noxious weed inventory maps. According to the noxious weed assessment, invasive non-native plant species known from the area include hoary cress, tall whitetop, spotted knapweed, Russian knapweed, and saltcedar.

3.7 Visual Resources

The area of the quarry (MP 437.05) and the Pennsylvania Canyon (MP 437.25) reclamation can be characterized as steep volcanic rock cliffs, with natural talus slope toes. Through freeze-thaw and erosional mechanisms, the steeply sloping volcanic rocks cleave from the cliffs and form boulder covered slopes. This colluvial system builds up rock slopes from the toe at the valley floor to near the cliffs where the rock originates. Photos 5 and 6 below show examples of this geologic condition near the Pennsylvania Canyon (MP 437.25) reclamation site.

One of the primary objectives of the reclamation of the quarry (MP 437.05), the borrow sites (MP 433) and the Pennsylvania Canyon area (MP 437.75) is to restore the scenic qualities of the area. Excavation of the areas has impacted the sites. The undisturbed areas have a natural disarray of rocks from gravity landslides.

Photo 5 – A boulder field near proposed reclamation sites.

Photo – 6 A boulder field near proposed reclamation sites.

3.8 Cultural Resources

On June 7, 2006, HRA archaeologists Christopher Harper and Keith Hardin accompanied UPRR personnel to conduct an archaeological survey of the Pennsylvania Canyon (MP 437.25) and Richmond Quarry (MP 470.20) project locations at the request of EDAW Inc. Prior to initiating the fieldwork for this project, a Fieldwork Authorization was received (FANV04-06-019) from the BLM Ely District Archaeologist.

Fieldwork was coordinated with Cody Lechleitner (CDM Environmental Engineer) and Kent Hargraves (UPRR Manager of Special Projects). During the field visit, Mr. Lechleitner escorted HRA archaeologists to the Richmond Quarry (MP 470.20) work area where rock will be quarried for use at Pennsylvania Canyon (MP 437.25). Bill Wright (CDM Environmental Geologist) escorted HRA archaeologists to the Pennsylvania Canyon work area.

Prior to fieldwork, Heidi Roberts conducted a site file search at the Harry Reid Center at the University of Nevada, Las Vegas. Jerry Lyon also conducted a NVCRIS search. A total of four projects have been conducted in the vicinity of the Richmond Quarry (MP 470.20) work area. A single site was recorded within approximately one mile of the project area. Two archaeological projects have been conducted in the vicinity of the Pennsylvania Canyon (MP 437.25) work area; no sites have been recorded within approximately 1 mile of the project area.

At the Richmond Quarry (MP 470.20) work area, approximately 6.4 acres were surveyed (including the disturbed area and the buffer outside the disturbed areas). Approximately 2.4 acres adjacent to the work area were too steep to be surveyed. At the Pennsylvania Canyon work area approximately 14.3 acres were surveyed within the disturbed areas and areas adjacent to the work area (HRA, 2006).

A cultural resource investigation was not conducted at the Clover Creek site (MP 470.75), as activities are limited to grading within the existing disturbed road. In the event that cultural or paleontological resources during reclamation activities are discovered that were not previously identified, operations in the vicinity of the discovered resources would cease immediately, the operator would notify the Ely Field Office Archaeologist, and a cultural resource investigation would be initiated.

A single isolated occurrence was noted adjacent to the Richmond Quarry (MP 470.20) work area. This isolated occurrence, consisted of a five foot diameter rock pile with approximately 50+ medium to larger rocks located on a flat area approximately 30-50 feet above the elevation level of the railroad and wash. No artifacts were identified in association with this rock pile, so HRA was not able to determine its cultural affiliation or period of construction.

Two isolated occurrences were identified within the Pennsylvania Canyon (MP 437.25) work area. One isolated occurrence (IO-1) is a single 1-gallon hole-in-cap food can that HRA recorded within a modern bulldozer push. The other isolated occurrence (IO-2) was a purple glass jar fragment located within the active outflow channel (diverted) of Pennsylvania Canyon. This artifact exhibited signs of water abrasion from water transport and is in a secondary context.

An additional feature encountered at the Pennsylvania Canyon (MP 437.25) work area is a section of drystone riprap, apparently installed manually, of undetermined temporal origin. The section of riprap occurs along the east face of the Pennsylvania Canyon diversionary berm as this drainage curves slightly to the east and merges with Meadow

Valley Wash. The riprap section is approximately 200 feet in length and is approximately 15 feet in height. At its southern end it transitions into a recently reconstructed, earthen section of the berm.

3.9 Other

Social, Including Environmental Justice

This section contains analyses required under Executive Order (EO) 12898: *Federal Action to Address Environmental Justice in Minority Population and Low-Income Populations* (59 CFR §7629). EO 12898 directs federal agencies "… to make achieving environmental justice part of its mission by identifying and addressing … disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the [U.S.]." The aim of EO 12898 is to determine if minority populations and low-income populations would be subjected to disproportionately adverse environmental effects as the result of the implementation of a given project.

The Council on Environmental Quality (CEQ) classifies minorities as those who identified themselves as belonging to one of the following groups: Black/African American; Hispanic, regardless of race; Asian; Native Hawaiian or Other Pacific Islander; and American Indian or Alaska Native. For the purposes of this analysis, minority individuals also include all other non-white racial categories such as "some other race" and "two or more races." CEQ guidance states that a "minority population" may be present in an area if the minority population percentage in the area of interest is "meaningfully greater" than the minority population in the general population. CEQ classifies low-income populations as those identified with annual salaries that are below the annual statistical poverty thresholds as reported by the Bureau of the Census. The accepted rationale in determining whether a low-income population is present in a given area, is similar to that for minorities in that the low-income population percentage within the area of interest is "meaningfully greater" than the low-income population of the general population.

The following discussion provides information on the race, ethnicity and poverty status of populations near MP 437.63 and MP 469.95 of the UPRR in Lincoln County, Nevada. This allows for the identification of the presence of minority and/or low-income populations. If minority and/or low-income populations are identified, any potential disproportionate impacts to these population(s) in comparison to the surrounding region would be determined.

The study area consists of one census tract, Tract 9502 located in Lincoln County (County), Nevada which lies in the southeastern section of the state approximately 150 miles northeast of Las Vegas. Since the study area consists of a single census tract, data from census block groups (sub units of census tracts) are utilized for a more localized analysis. Data from the census block groups are compared to County data to provide a comparison of the study area to the surrounding region. Tract 9502 contains two census block groups. Table 1 shows the racial and ethnic composition of these blocks groups

and the County as of 2000. Populations with incomes considered to be below the poverty level and poverty status area also shown.

As shown in Table 1, the total minority population of Block Group 9502.1 was proportionally smaller than the County and therefore is not considered to contain a minority population. Block Group 9502.2 showed a substantially higher proportion of minorities than the County in 2000, and under the guidelines outlined earlier in this section is considered to be a minority population.

As shown in Table 1 Block Group 9502.1 showed a marginally lower proportion of its population with incomes considered to be below the poverty level when compared to the County, and therefore is not considered to contain a low-income population in 2000. Block Group 9502.2 showed a marked higher proportion of its population with incomes considered to be below the poverty level when compared to the County, and under CEQ guidelines is considered to be a low-income population.

Prime and Unique Farmlands

The Farmland Protection Policy Act (FPPA) applies to federal actions that would convert prime or unique farmlands, or farmlands of statewide or local importance, to nonagricultural use. Pursuant to the Farmland Protection Policy Act, impacts to farmland must be determined if farmland is converted to nonagricultural use, or if such conversion is permitted, by a federal agency. Consultation with the Nevada office of the Natural Resource Conservation Service (Doug Mekler, personal communication) indicates that there are no prime or unique farmlands, or farmlands of statewide or local importance, in the vicinity of the proposed action.

Table1
Race, Population, and Poverty Status within Census Block Groups in the Project Vicinity in Comparison to Lincoln County

Census Block Group	9502.1	9502.2	Lincoln County
RACE			
White	**93%** (1020)	**88%** (1057)	**90%** (3944)
Black or African American	**0.09%** (1)	**2%** (22)	**2%** (71)
American Indian and Alaska Native	**1%** (15)	**3%** (22)	**2%** (66)
Asian	**0.2%** (2)	**0.7%** (37)	**0.3%** (13)
Native Hawaiian or Pacific Islander	**0%** (0)	**0.08%** (1)	**0.02%** (1)
Some Other Race	**4%** (41)	**3%** (40)	**0.7%** (23)
Two or More Races	**2%** (17)	**3%** (39)	**1%** (61)
Total Population	**1096**	**1204**	**4165**
ETHNICITY			
Hispanic or Latino	**4%** (43)	**7%** (82)	**5%** (221)
Total Minority[1]	**7%** (76)	**12%** (147)	**8%** (354)
POVERTY STATUS			
Persons Below Poverty Level[2]	**14%** (156)	**21%** (217)	**15%** (626)

1 Total minority population are all persons in the study area who identified themselves as Black/African American; Hispanic, regardless of race; Asian; Native Hawaiian or Other Pacific Islander; American Indian or Alaska Native, some other race and two or more races.

2 Persons defined with incomes below poverty level as reported in the 2000 Census of Population and Housing.

Source: Census 2000

Grazing/Rangeland

The Pennsylvania and Schlarman grazing allotments border the project areas, and the Clover Creek site (MP 470.75) is within the Clover Creek grazing allotment. Consultation with the BLM (Shirley Johnson, email dated August 4, 2006) indicates that these grazing allotments are currently permitted but in non-use, and would not be impacted at this time by restoration activities.

Native American Consultation

The proposed action was presented by BLM at the quarterly Native American Coordination Meeting on May 18, 2006. No concerns were expressed about this action by the tribes in attendance.

Wetlands

Pennsylvania Canyon is a blue line drainage on the Elgin and Leith U.S. Geological Survey quadrangles. Pennsylvania Canyon is an intermittent stream channel, and does not support any obligate wetland plant species. Portions of Pennsylvania Canyon support re-colonizing cottonwood, which is a facultative wetland species (i.e., it usually occurs in wetlands). However, no other wetland indicators are present within the portion of Pennsylvania Canyon associated with the proposed action area (MP 437.25).

Although the Richmond Quarry (MP 470.20) site is located near Clover Creek, no blue line drainage or wetland vegetation occurs within the limits of that site. In addition, no blue line drainage or wetland delineation occurs within the limits of the borrow pit site.

Section 4
Environmental Consequences
4.1 Proposed Action
4.1.1 Wilderness

The proposed action would restore the areas within designated wilderness to a state of naturalness and aid in the long-term untrammeled character of the wilderness. Remediation activities would have some impacts to solitude and primitive recreation activities, but would be very short-term in nature. Also in the short term, the untrammeled character of the wilderness would be decreased by the restoration activities. Following the reclamation activities, the proposed alternative would have a positive impact on solitude and primitive recreational opportunities by removing roads into the area.

As the Proposed Alternative has positive impacts on the Wilderness Area, and short-term mitigations have been built into the alternative (i.e. use of hand tools), no additional mitigations are proposed.

4.1.2 Areas of Critical Environmental Concern

The proposed action is not located in an area of critical environmental concern (ACEC) as designated in the Desert Tortoise Plan Amendment to the Caliente Management Framework Plan. There would be no effect on these areas.

4.1.3 Wildlife

The proposed action is expected to enhance the wildlife habitat over the existing condition of the project area. The revegetation (i.e., proposed hydroseeding of bare areas, and salvage/protection of re-colonizing cottonwoods) should eventually provide habitat for a variety of wildlife species. Benefits to wildlife resources are expected to include increased protective cover for mammals, reptiles, and amphibians, and additional protection, forage, and nesting areas for bird species.

The restoration would occur on previously disturbed areas, and effects to natural portions of the wilderness areas would be minimized. Individual wildlife animals may be affected during the blasting of the rock faces on the slopes, in order to return the hillsides to a more natural rockslide formation. In particular, the rock blasting potentially could affect individual animals of two special status wildlife species, the California myotis, and the pallid bat.

Offsite resources, such as the potential future Big Springs spinedace refuge, or populations of Arizona toad, would not be impacted by increased sedimentation. Implementation of standard construction BMPs would be sufficient in avoiding these impacts.

4.1.4 Soils

Any soil disturbance associated with the proposed action would be confined to lands administered by the BLM and land within UPPR ROW. Pursuant to the Standard Operating Procedures all vehicles would be designated to existing roads located outside of the project wilderness area, and required equipment would be walked into the disturbed areas. Moreover, the Standard Operating Procedures stipulate that no mechanized equipment would be used in areas that have not been previously disturbed. Furthermore, erosion controls would be implemented as part of the proposed action as needed. Erosion controls, which are described in Section 2.2.1 of this report, would include the placement of sterile weed free hay bales to create a sediment deposition location at the base of steep slopes. Based on the proposed Standard Operation Procedures, and given the scope of the proposed action, it can be concluded that the proposed action would not induce substantial adverse impacts to soil, and that the implementation of reclamation activities such as erosion controls would benefit area soils.

4.1.5 Vegetation

With the anticipated successful restoration of native vegetation via hydroseeding the bare areas within the proposed action area, it is expected that there would be an overall enhancement of the native vegetation, relative to the existing condition. The seed mixes that would be used in hydroseeding are included in Appendix B.

During the implementation of the proposed action, there would be minimal impacts to vegetation during blasting of the rock slopes. Since the sites are relatively disturbed from previous activities, most of the proposed action area is denuded, and the likelihood of additional disturbance of native vegetation is minimal. Some adjacent vegetation could be crushed by workers. Overall, the proposed action would assist in the natural revegetation of the area.

4.1.6 Invasive, Non-Native Species

The existence of some invasive, non-native, and noxious weeds has been determined through analysis of the noxious weed assessment for Meadow Valley Wash and Cottonwood Creek in the vicinity of the proposed action. The noxious weed assessment included field surveys and the consultation of BLM-maintained noxious weed survey maps. The invasive species hoary cress, tall whitetop, spotted knapweed, Russian knapweed, and saltcedar are components of the vegetation communities in the vicinity of the proposed action area. The use of native seeds in hydroseed mixes sprayed over bare areas within the proposed action area would limit the spread of invasive, non-native species.

Introduction of non-native species would be avoided by cleaning and inspecting equipment prior to its use on site. Prior to their use on site, seed mixes and erosion control materials made of natural fibers would be certified weed-free.

4.1.7 Visual Resources

Visual Resources would be significantly improved by the proposed project with the objective being creating a natural look.

4.1.8 Cultural Resources

HRA recommends that the three isolated occurrences and the section of hand-laid riprap identified during this investigation are not eligible for nomination to the National Register of Historic Places (NRHP), as the information they provide has been adequately recorded. The research potential of these occurrences is minimal and has been sufficiently documented. The isolate at Richmond Quarry (MP 470.20) will not be impacted by quarry activities. The two isolates at Pennsylvania Canyon (MP 437.25) may be moved during reclamation activities to preserve the integrity of the objects, however these items have already been disturbed through prior exposure or water transport. Methods that would be employed to preserve the integrity of the existing riprap section are included in Section 2 of this document. The proposed alternative would have a positive impact on special features such as cultural resources by restoring and stabilizing the hand-worked stone wall, which would increase its integrity for future flood events.

4.1.9 Other

Social, Including Environmental Justice

One of the Census Block Groups in the vicinity of the proposed action (Census Block 9502.2) is considered to be both a minority population and a low-income population when compared to the County. However, there is no evidence to suggest that minority or low-income populations reside in proximity to the proposed action as the area is rural and remote. Given the scope and location of the proposed restoration activity, there is no indication that the proposed action would disproportionately impact the identified minority or low-income populations. The proposed action would not include activities that would disproportionately expose any populations to adverse noise or air impacts, or promote exposure to hazardous materials. All effects would be at a level that would not adversely impact any populations, including minority or low-income populations.

Prime and Unique Farmlands

As there are no prime or unique farmlands, or farmlands of statewide or local importance, in the vicinity of the proposed action, these resources would not be affected.

Grazing/Rangeland

As there are no grazing allotments currently in use in the vicinity of the proposed action, grazing resources would not be affected

Native American Consultation

Input received via tribal coordination by BLM indicates that the project would not adversely affect areas or properties of Native American concern.

Wetlands

Offsite resources, such as wetlands along Meadow Valley Wash, are not anticipated to be impacted by an increase in sedimentation, if any, resulting from these actions. Implementation of standard construction BMPs would further reduce any potential for sedimentation and should be sufficient in avoiding impacts to these resources.

4.1.10 Permits Required

UPRR has submitted applications for ROW grants for the locations described in this EA to BLM. The only permanent structures to be included in the reclamation are the dike in Pennsylvania Canyon (MP 437.25), and the access road to the power line in Clover Creek (MP 437.05).

Permits from the United States Army Corps of Engineers are not expected since the reclamation activities are not anticipated to occur in jurisdictional waters of the United States. In the event that any areas of work were determined to be in jurisdictional water, such work would be conducted in accordance with the Army Corps of Engineers Nationwide Permit No. 3. Nevada permit NVD 100000 would be utilized for surface water protection measures. Because no work is anticipated to be conducted in Nevada state water, a Nevada Working Waterways Permit is not required. Nevertheless, BMPs would be implemented to minimize potential impacts as noted above.

4.1.11 Secondary and Cumulative Impacts

According to the 1994 BLM Handbook Guidelines for Assessing and Documenting Cumulative Impacts, the cumulative analysis should be limited to those issues and resource values identified during scoping that are of major importance. The issue of major importance identified during internal scoping was the maintenance of naturalness within Wilderness through the reclamation of disturbances within wilderness. A general discussion of past, present, and reasonably foreseeable future actions follows:

Past

Past actions in the project area include: BLM permitted grazing, railroad construction and maintenance, flooding in Pennsylvania Canyon, designation of Wilderness Study Area and Wilderness, road construction and maintenance, lands becoming privately owned through the Homestead Act, wildland fires and the associated impacts, as well as the borrow activities discussed within this document.

Present

Present actions in the project areas include the granting of right-of-ways for the proposed actions. Granting the right-of-ways for the reclamation activities would reverse the cumulative effects of this use, if any, from the disturbed areas, resulting in overall positive effects to wilderness characteristics, wildlife, vegetation, soil and visual resources.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions for the project areas include possible flooding events and fires (wildland and planned). These actions would allow natural forces to continue to shape the Wilderness.

4.2 No Action

4.2.1 Wilderness

The No Action Alternative would have no impact on the Wilderness by affecting both the naturalness, and special features of the area. The wilderness would remain disturbed, while leaving the roads in place could encourage illegal use of motorized vehicles within the Wilderness. The rock wall cultural resource (defined as a special feature) would continue to be vulnerable to erosion under the No Action Alternative.

4.2.2 Wildlife

Under the No Action alternative, wildlife habitat within Wilderness would remain in its present disturbed state. No increase in protective cover, forage, or breeding areas would occur with the No Action alternative.

The No Action alternative would avoid impacts to rock outcrops and crevices potentially occupied by special status wildlife species such as the pallid bat and California myotis. No impacts would occur to any resident wildlife species during the disturbance required under the proposed action. No additional impacts to areas adjacent to the proposed action area would occur.

4.2.3 Soils

Under the No Action Alternative, soils would remain in an undisturbed state from this point onward. There would be no implementation of measures designed to control erosion that may be accelerated as a result of the flood that traveled through Meadow Valley Wash.

4.2.4 Vegetation

No native habitat restoration would occur, and the currently bare areas would be subject to a greater degree of invasive species colonization. Under the No Action alternative, a lack of habitat restoration would result in a natural recovery of plant communities within the project area. As such, naturally recovering communities would take longer to reach maturity, especially in a desert ecosystem. No impacts to vegetation in areas adjacent to existing disturbances would occur as a result of activities described under the proposed action.

4.2.5 Invasive, Non-Native Species

Under the No Action alternative, the previously disturbed, bare ground within the proposed action area would remain until colonized by natural processes. Without active

restoration with a native hydroseed mix both native and invasive, non-native plant species could colonize the project area.

4.2.6 Visual Resources

The No Action alternative would result in a continued impact to the visual resources of the Wilderness Area. The area looks disturbed and unnatural. This disturbed and unnatural appearance would continue until colluvial mechanisms "self heal" the site. This self healing could take decades.

4.2.7 Cultural Resources

Under the No Action alternative, the Pennsylvania Canyon diversionary berm would remain in its current flood-damaged state. Without reclamation, the berm and hand-placed rock would likely continue to be adversely affected by the elements.

4.2.8 Secondary and Cumulative Impacts

Implementation of the No Action Alternative could result in increased encroachment of non-native species due to the disturbed areas and negative visual impacts due to continued erosion of the disturbed areas. If non-native species are allowed to grow and establish themselves, the non-native species could propagate, resulting in additional secondary impacts. The current roads leading to the borrow areas could encourage illegal use of motorized vehicles within the Wilderness and on public land managed by BLM, particularly given the increased use of off-road vehicles and the increasing populations in southern Nevada.

Section 5
Consultation and Coordination

5.1 Public and Agency Involvement Activities

BLM will post this EA on its web site and allow a 30 day public comment period for the document. Comments will be taken either by phone, in writing, or as a comment directly on the web site. BLM is the lead agency and has coordinated with other agencies as necessary for project requirements and information.

The BLM Ely Field Office held a Native American Coordination meeting on May 18, 2006, in which the proposed ROWs were discussed. In attendance at that meeting were the Ely and Duckwater Shoshone Tribes. No questions, comments, or concerns were raised during this meeting.

A notice of proposed action was sent out to the wilderness mailing list on September 26, 2006, for a 30 day comment period.

Section 6
List of Preparers

Name and Title	*Company*	*Project Responsibility*
Randy Huffsmith, P.E., D.E.E. Civil/Water Resources Engineer	CDM	Alternatives Development, Visual Resources, Public and Agency Involvement
Kent Whiting Geochemist	CDM	Purpose and Need, Wilderness, Permitting, Secondary and Cumulative Impacts, and Conformance with Existing Plans
Bill Graham, Environmental Planner Lyndon Quon, Biologist Andy York, Archaeologist Anthony Rogers-Wright, Environmental Analyst/Socioeconomic Specialist	EDAW	Wildlife, Soils, Vegetation, T&ES, Cultural, Invasive and Non-invasive Species, and ACECs
Christopher Harper Keith Hardin	HRA	Cultural Resources
Ann Perkins – Project Lead/Realty Specialist Steve Leslie-Wilderness Planner Carolyn Sherve-Bybee – Environmental Coordinator Jeff Weeks – BLM Lead Bill Wilson – Geologist Elvis Wall – Native American Coordinator	BLM	EA Review

Domenic Bolognani – Rangeland Management Specialist Anthony Cardullo – Weeds Mark Henderson - Archeologist	BLM	EA Review

Section 7
List of Acronyms

ACEC	Areas of Critical Environmental Concern
ARPA	Archaeological Resources Protection Act
BLM	Bureau of Land Management
BMP	Best Management Practices
CEQ	Council on Environmental Quality
DEQ	Department of Environmental Quality
DM	Departmental Manual
EA	Environmental Assessment
ESA	Endangered Species Act
FLPMA	Federal Land Policy Management Act
FPPA	Farmland Protection Policy
MFP	Management Framework Plan
MP	Railroad Milepost
NEPA	National Environmental Policy Act
NNHP	Nevada Natural Heritage Program
NRHP	National Register of Historic Places
ROW	Right of Way
SWPP	Surface Water Protection Plan
UPRR	Union Pacific Railroad
USACE	US Army Corp of Engineers
USEPA	US Environmental Protection Agency
USC	United States Code
VMA	Veet-Mosida Association

Appendix A
Standard Operating Procedures

APPENDIX A

Biological, Cultural and Public Land Data Needs and Conservation Measures for Union Pacific Railroad at Sites in Meadow Valley Wash and Clover Creek, Lincoln County, Nevada

This appendix sets forth the specific data needs to be collected and conservation measures to be implemented by Union Pacific Railroad Company (UPRR) at specific sites and other associated areas (e.g., disposal sites for fill removed) along Meadow Valley Wash and Clover Creek.

I. Data Quality and Standards

Any data collected by UPRR and its consultants or contractors shall be in compliance with the following data quality and standards.

A. Data Standards

The following data standards shall be followed:

1. All data collected; including analysis, interpretation, reports, construction plans and designs are to be provided in both digital and hard-copy format.
2. Electronic word processing documents will be in Microsoft Word 2003 for Windows.
3. All documents, supporting records, and publications will be verified true and correct Portable Document Format (PDF).
4. All GIS products shall be presented in UTM NAD 1983 datum.
5. All changes of electronic filenames/locations are to be documented. A catalog of any filenames which have been changed shall be maintained throughout the project and should include the original filename and location, and the current filename and location. This catalog should be delivered in the same format as all other documentation at the conclusion of the project. For example, it should be possible to relate raw data files collected using a Global Positioning System to files exported to a Geographic Information System.
6. All data collected shall be scientifically defensible, repeatable, and collected using accepted techniques outlined in scientific literature, consultation with agencies, and/or based on techniques used to acquire existing data.

B. Data Adequacy

The following information shall be attached to any data obtained both in the file and in printed versions:

1. The name, addresses, title, and phone number of the person obtaining the data.
2. A location of where the data was taken and the direction it was taken where appropriate. (i.e. 45° NNE).
3. The time and date the data was gathered reported in local 24 hour format.
4. An identifying number for the person taking the picture if a contractor. A driver's

license number is preferred making sure to identify which state the driver's license was issued.

5. Equipment used to gather data. It is preferred that any files sent to the data record not be altered. Please state if any data was altered when they are submitted and if altered what program was used to alter the file.
6. For photos, a typed word document with the above information and photo log info taken in the field shall be included with a CD containing the photos. Photos shall be saved with a number corresponding to the attached photo log. For example, photo 1 may be saved with the following code:

   BEP 1 06/08/2005 With the initials of the person taking the photo (BEP), 1 being the photo number with the corresponding photo log, and the date the photo was taken

C. GPS Data Management Strategy

Prior to data collection, each GPS unit shall be programmed with the following default settings:

GPS Default Settings					
Units		**Time**		**Position**	
Distance & Speed	Statute	Time format:	Local 24hr	Position Format	IUTM
Heading:	True	Local Time Zone:	07:00 behind UTC for Daylight Savings Time	Map Datum:	NAD 1983 (Conus)
Altitude/ Elevation	Feet		08:00 behind UTC for Standard Time	Zone:	11 North
Altitude Reference	MSL (Mean Sea Level				

The following parameters shall be included in the data dictionary unless other parameters are specified:

- Surveyor name
- Date and time
- Site name/location name
- Common and scientific species name
- Vegetation community
- Soil type
- Percent of soil stability (using method developed by the BLM and Dr. David James, UNL V)
- Type of human disturbance, if present
- GPS landmark in UTMs using the NAD 1983 map datum of an individual or groups of individuals, and accuracy of the reading (HDOP, PDOP, VDOP)
- Locations will also be noted on a GIS produced, electronic USGS 7.5' topographic

map, or other map of similar scale and resolution
- Digital photo-documentation

When exporting files to GIS, the following attributes shall be exported for all features:

- PDOP
- HDOP
- VDOP
- Correction Status
- Date Recorded
- Time Recorded
- Data File Name
- Total Positions

Exported features shall have the following coordinate system:
- System: UTM
- Zone: 11 North
- Datum: NAD 1983 (Conus)
- Coordinate Units: Meters
- Altitude Units: Feet
- Altitude Reference: MSL

Export units shall be set as follows when exporting files:
- Distance Units: Feet
- Area Units: Acres
- Velocity Units: Miles Per Hour

Raw data files (* .ssf), base files, differentially corrected files (* .cor), and shape (GIS) files (exported * .ssf files) shall be retained and delivered to the BLM.

II. Damage Assessment

The following outlines damage assessment data that shall be collected at the sites and other associated areas (e.g., disposal sites for fill removed) prior to implementation of the stabilization actions to document damage to biological resources, cultural resources, and public lands that occurred during the post-flood construction activities that UPRR conducted between January 2005 and the present.

Any data collected by UPRR and its consultants or contractors shall be in compliance with the data quality and standards outlined in section I. A - C of this document.

III. Conservation Measures to Minimize Impacts to Federally Listed or Sensitive Species

A. General Measures for all Sites

1. All activities shall occur within previously disturbed areas (i.e. mostly non-vegetated areas), including placement of removed fill, and storage of equipment, vehicles and supplies.
2. Equipment shall be steam cleaned prior to entering either Meadow Valley Wash or Clover Creek to remove any potential weed seeds and to prevent them from being transported into the stabilization areas from other project areas.
3. A weed management plan shall be developed and implemented following guidelines recommended by the Ely BLM (BLM 2000). This plan will require preapproval by the BLM.
4. Adaptive management strategies shall be incorporated at each site to collect data for inclusion in long-term restoration plans. A qualified biologist and/or geomorphologist shall collect and maintain adaptive management, post-construction monitoring data.

   Adaptive management monitoring shall include 1) historical aerial photo interpretation of post-construction conditions for vegetation community structure within the area impacted by UPRR's activities in early 2005, 2) baseline geomorphic surveys of the area impacted by UPRR's activities in early 2005, and 3) revegetation locations/mapping and geomorphic surveys to reflect as-built conditions.
5. No oil or other fluid materials shall be drained onto the ground surface. No equipment shall be refueled within 100 feet of waters of the U.S. including wash systems whose runoff has the potential to enter the Meadow Valley Wash or Clover Creek system.
6. Any fuel, transmission or break fluid leaks or hazardous waste leak, spills or releases will be stopped/repaired immediately and cleaned up by UPRR at the time of occurrence. It is suggested that all heavy equipment and vehicles carry a bucket and pads to absorb leaks or spills. Contaminated soil will be removed and disposed of at an appropriate facility. If spills occur in a maintenance yard, they will be cleaned up by UPRR after construction is complete. Petroleum products such as gasoline, diesel fuel, helicopter fuel, and lubricants will be containerized in approved containers. Hazardous materials shall be properly stored in separate containers to prevent mixing, drainage, or accidents.
7. No equipment or construction materials shall be stored within 100 feet of waters of the U.S. including wash systems whose runoff has the potential to enter the Meadow Valley Wash or Clover Creek system.

B. Southwestern Willow Flycatcher

The conservation measures outlined below will ensure that impacts to the southwestern willow flycatcher *(Empidonax trailii extimus)* are avoided or minimized, a species listed as endangered under the Endangered Species Act of 1973, as amended, (ESA) shall occur.

1. All sites and associated activities shall be implemented outside of the species' breeding season (May 1 through August 31).
2. No mature riparian vegetation shall be removed. In locations where riparian vegetation has resprouted since the flood or original UPRR disturbance, riparian vegetation less than three feet in height may be removed by UPRR. All resprouted riparian vegetation that was removed shall be replaced in kind at a 2: 1 ratio to ensure successful

revegetation, with the exception of tamarisk which should be replaced with an equivalent native species at a 2:1 ratio.

3. In addition to #2 above, in disturbed riparian areas, UPRR shall plant cottonwood *(Populous fremontU),* Gooding's willow *(Salix gooddingii)* and coyote willow *(Salix exigua).* Vegetation will be planted so that it develops into flycatcher habitat in five to seven years. Flycatcher habitat should have a canopy closure of greater than 60% and a patch size of greater than O.I-acre. To minimize likelihood of washouts of planted vegetation during high water events, vegetation should be planted in greater densities on upstream outside bends, or on downstream inside bends, or along runs. Planted vegetation should be protected from grazing by degradable tubing/tree guards.

IV. References

BLM (Bureau of Land Management) 2000. Integrated Noxious and Invasive Weed Management Programmatic Environmental Assessment, NV-040-00-0I7.Ely Field Office. Ely, NY. Approved August 7, 2000.

USFWS (United States Fish and Wildlife Service) 1992. Procedures for Endangered Species Act Compliance for the Mojave Desert Tortoise. USDI Fish and Wildlife Service Regions **1,2,** and 6. October 1992.

Appendix B
Proposed Seed Mix

Meadow Valley Stabilization Project
Proposed Mix
Clover Creek (Upper) Seed Mix

Scientific Name	Species	Rate PLS Pounds per Acre	% of Mix
Agropyron riparium	**Sodar' Streambank Wheatgrass**	2.00	0.07
Elymus lanceolatus ssp. Psammophilus	**P27' Siberian Wheatgrass**	1.00	0.04
Agropyron sibericum	**Purple three-awn**	1.50	0.09
Elymus fragile ssp. Sibericum	**Basin big sagebrush**	0.20	0.12
Aristida purpurea	**Fourwing Saltbrush**	3.00	0.04
Artemisia tridentata tridentata	**Indian paintbrush**	0.05	0.06
Atriplex canescens	**Beeplant**	3.00	0.05
Castellija chromosa	**Cliffrose**	4.00	0.05
C. applegatei ssp. Maritinii	**Galleta (florets)**	2.00	0.07
Cleome serrulata	**Big galleta**	0.50	0.04
Caowania mexicana	**Indian ricegrass**	2.00	0.07
Purshia mexicana	**Firecracker penstemon**	0.25	0.03
Hilaria jamesii	**Sandberg bluegrass**	0.25	0.05
Hilaria rigida	**Bottlebrush squirreltail**	1.50	0.07
Pleuraphis jamesii	**Globemallow**	0.25	0.03
Pleuraphis rigida	**Sand dropseed**	0.10	0.12
Oryzopsis hymenoides			
Achnatherum hymenoides	**TOTAL PLS POUNDS/ACRE**	**21.60**	1.00
Penstemon eatonii		**99**	**SEEDS/SF**
Poa sandbergii			
Sitanion hystrix			
Elymus elymoides			
Sphaeralcea grossulariaefolia			
Sporobolus cryptandrus			

Meadow Valley Stabilization Project
Proposed Mix
Meadow Valley (Lower) Seed Mix

Scientific Name	**Species**	**Rate PLS Pounds per Acre**	**% of Mix**
Agropyron riparium	**Sodar' Streambank Wheatgrass**	2.00	0.06
Elymus lanceolatus ssp. Psammophilus	**Purple three-awn**	2.00	0.09
Aristida purpurea	**Fourwing Saltbrush**	4.00	0.04
Atriplex canescens	**Desert saltbrush**	0.50	0.07
Atriplex polycarpa	**Desert marigold**	0.25	0.05
Baileya multirata	**Blue grama**	0.50	0.08
Bouleloua gracilis	**Brittlebrush**	2.00	0.06
Encelia farinosa	**Flat-top buckwheat**	0.50	0.04
Ericgonum fasciculatum	**Annual sunflower**	4.00	0.04
Helianthus annuus	**Galleta (florets)**	3.00	0.09
Hilaria jamesii	**Big galleta**	0.50	0.03
Hilaria rigida	**White burrobush**	2.00	0.04
Pleuraphis jamesii	**Creosote bush**	3.00	0.04
Pleuraphis rigida	**Arizona lupine**	1.00	0.02
Hymenoclea salsola	**Wolfberry**	0.25	0.03
Larrea tridentata	**White evening primrose**	0.25	0.02
Lupinus arizonicus	**Indian ricegrass**	2.00	0.05
Lycium andersonii	**Showy penstemon**		0.03
Oenothera pallida	**Globemallow**	0.25	-
Oryzopsis hymenoides	**Sand dropseed**	0.10	0.10
Achnatherum hymenoides			
Penstemon pseudospectabilis	**TOTAL PLS POUNDS/ACRE**	**28.1**	1.00
Sphaerelcea coccinea		**125**	**SEEDS/SF**
Sporobolus cryptandrus			

Currently Available mix

Attn' Gary letz

Meadow Valley Wash Emergency Stabilization Project
Clover Valley

	Scientific Name	Species	Rate PLS Pounds Per Acre	% of mix
	Agropyron riparium / *Elymus lanceolatus ssp. Psammophilus*	'Sodar' Streambank wheatgrass	2.00	0.07
	Agropyron sibericum / *Agropyron fragile ssp.sibericum*	P27' Siberian wheatgrass	1.00	0.04
	Aristida purpurea	Purple three-awn	1.50	0.09
	Artemisia tridentata tridentata	Basin big sagebrush	0.20	0.12
*	*Atriplex canescens*	Fourwing saltbush	3.00	0.04
	Castellija chromosa / *C. applegatei ssp/ martinii*	Indian paintbrush	0.05	0.06
**	*Cleome serrulata*	Beeplant	~~3.00~~ 1.00	0.05
**	*Cowania mexicana* / *Purshia mexicana*	Cliffrose	~~4.00~~ 1.00	0.06
	Hilaria jamesii / *Pleuraphis jamesii*	Galleta (florets)	2.00	0.07
*	*Hilaria rigida* / *Pleurephis rigida*	Big galleta	0.50	0.04
	Oryzopsis hymenoides / *Achnatherum hymenoides*	Indian ricegrass	2.00	0.07
*	*Penstemon eatonii*	Firecracker penstemon	0.25	0.03
	Poa sandbergii	Sandberg bluegrass	0.25	0.05
	Sitanion hystrix / *Elymus elymoides*	Bottlebrush squirreltail	1.50	0.07
	Sphaeralcea grossulanaefolia	Globemallow	0.25	0.03
	Sporobolus cryptandrus	Sand dropseed	0.10	0.12
	Triticale spp	Quickguard sterile	5.0	
		TOTAL PLS POUNDS/ACRE	21.60	1.00

99 seeds/sf

granite SEED
1697 W. 2100 N.
LEHI, UT 84043
(801) 768-4422

#268.80 per acre

* Species unavailable. Recommend + bid substituting the following: Beeplant (Peritibia Columnaris) for Indian paintbrush; Indian grass (Sorgastrum nutans) for Big galleta; and Palmer penstemon (Penstemon palmeri) for Firecracker penstemon.

** Species in limited supply. Recommend + bid reducing the rate of application to 1.0 pls#/acre + adding Quickguard sterile triticale @ 5.0 pls#/ac as a cover crop for erosion protection.

10-31-05

2 of 2

Meadow Valley Wash Emergency Stabilization Project MVW

	Scientific Name	Species	Rate PLS Pounds per Acre	% of mix
	Agropyron riparium			
	Elymus lanceolatus ssp. psammophilus	'Sodar'Streambank Wheatgrass	2.00	0.06
	Aristida purpurea	Purple three-awn	2.00	0.09
	Atriplex canescens	Fourwing Saltbush	4.00	0.04
	Atriplex polycarpa	Desert saltbush	0.50	0.07
	Baileya multirata	Desert marigold	0.25	0.05
	Bouteloua gracilis	Blue grama	0.50	0.08
	Encelia farinosa	Brittlebush	2.00	0.06
	Eriogonum fasciculatum	Flat-top buckwheat	0.50	0.04
	Helianthus annuus	Annual sunflower	4.00	0.04
	Hilaria jamesii			
	Pleuraphis jamesii	Galleta (florets)	3.00	0.09
*	*Hilaria rigida*			
	Pleuraphis rigida	Big galleta	0.50	0.03
*	*Hymenochlea salsola*	White burrobush	2.00	0.04
	Larrea tridentata	Creosote bush	3.00	0.04
*	*Lupinus arizonicus*	Arizona lupine	1.00	0.02
*	*Lycium andersonii*	Wolfberry	0.25	0.03
	Oenothera pallida	White evening primrose	0.25	0.02
	Oryzopsis hymenoides			
	Achnatherum hymenoides	Indian ricegrass	2.00	0.05
*	*Penstemon pseudospectabilis*	Showy penstemon	0.25	0.03
	Sphaeralcea coccinea	Globemallow		
	Sporobolus cryptandrus	Sand dropseed	0.10	0.10
		TOTAL PLS POUNDS/ACRE	28.10	1.00
			125	seeds/sf

$389.10 per acre

granite SEED
1697 W. 2100 N.
LEHI, UT 84043
(801) 768-4422

*Species unavailable. Recommend bid the following substitutions: Indiangrass (Sorgastrum nutans) for Big galleta; Shadscale (Atriplex confertifolia) for White burrobush; Arroyo lupine (Lupinus succulentus) for AZ lupine; Winterfat (Ceratoides lanata) for Wolfberry; and Palmer penstemon (Penstemon palmeri) for Showy penstemon

10-31-05

Note! If Quickguard added to mix as erosion control cover crop @ 5.00 pls #/ac, price/ac would increase by $6.50